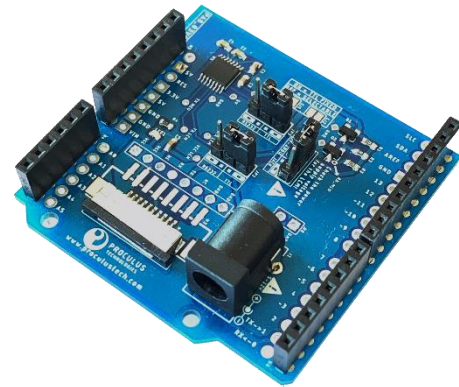


PAB_03V01

Arduino Shield



Description

Proculus Accessory Board Model 03 (PAB_03) is an Arduino Shield for UnicView AD LCMs.

It's used to connect an LCM Display into an Arduino board quickly and reliably.

PAB_03 is provided in different variants, each with the adequate connectors for your application.

Note: PAB_03 is best used in conjunction with **UnicView AD.ino**, our Arduino code library for UnicView AD LCMs.

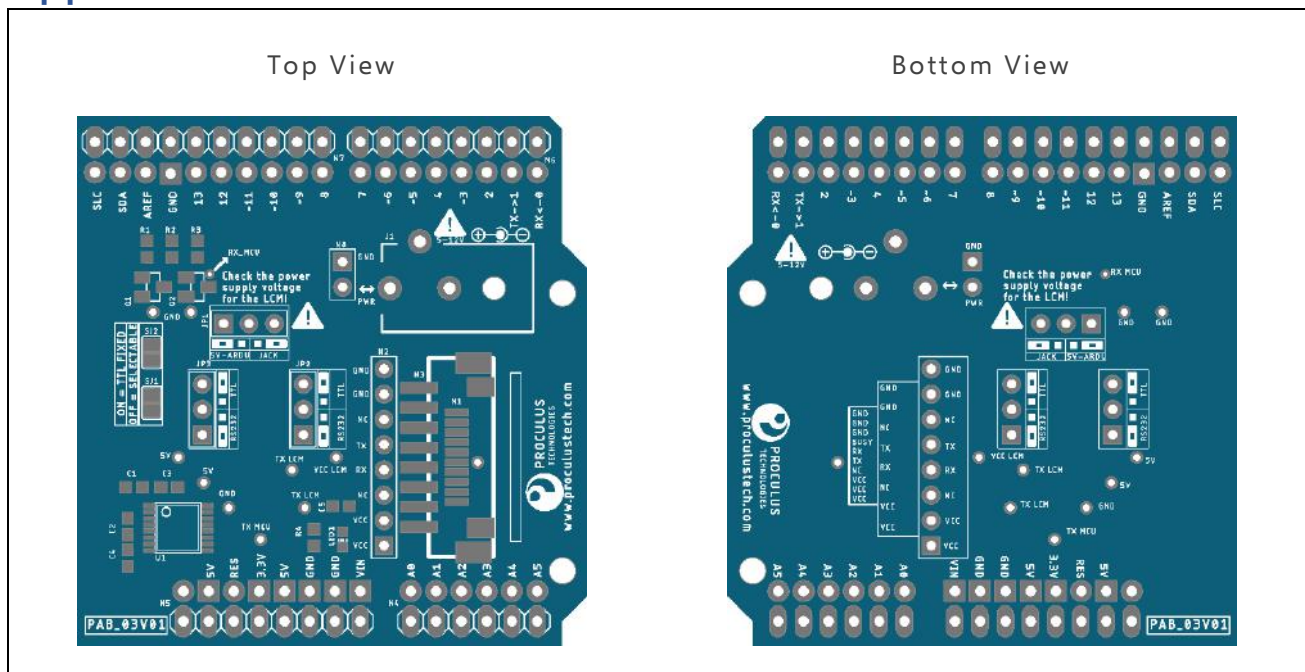
Features

- Selectable LCM power supply.
- Compatible with RS232 and TTL/CMOS levels.
- Fully compatible with Arduino Uno and Mega pinouts.
- Orderable in several different connector options.

Applications

- Rapid development.
- Prototyping.
- Common Arduino projects.

Appearance



Pinout

N1, N2 and N3 Connectors Signal Description

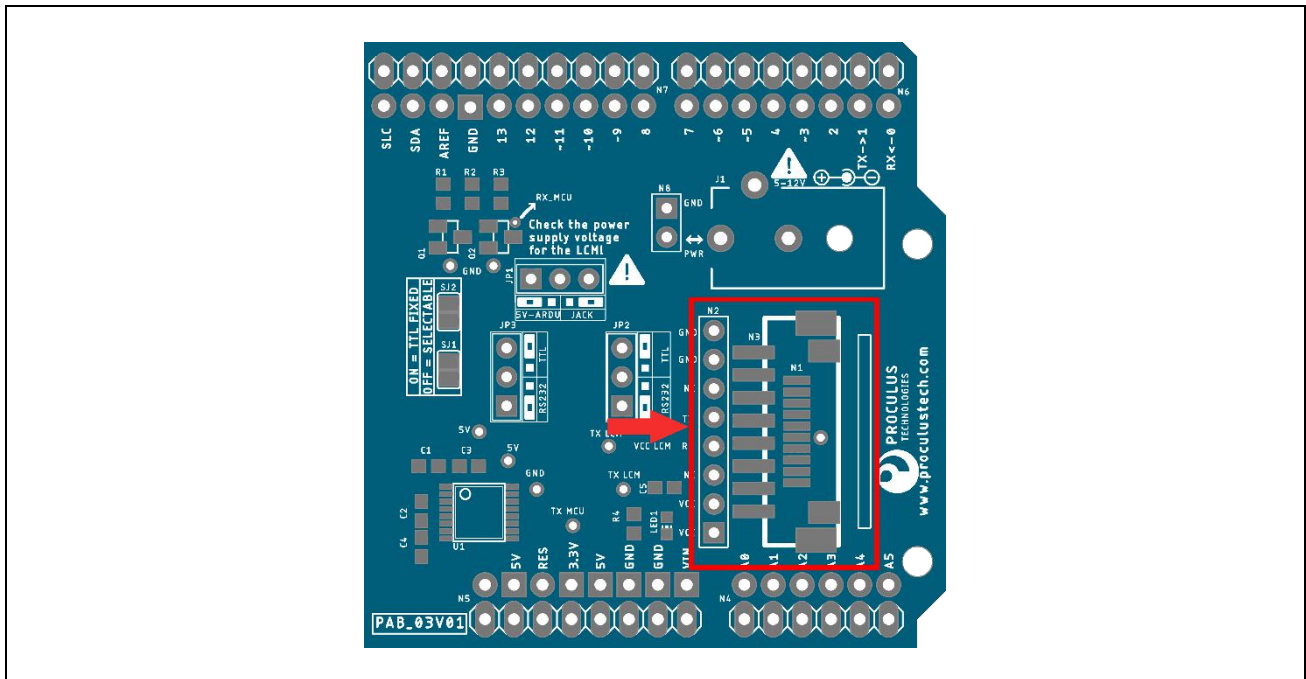
These are the LCM connectors. Only one type of connector is usually soldered.

| Signal | Details |
|----------------------------|---|
| VCC⁽¹⁾ | LCM Supply Voltage |
| GND | Common Supply Ground |
| TX⁽²⁾⁽³⁾ | TX (from the board). Connects to the LCM's RX |
| RX⁽²⁾⁽³⁾ | RX (from the board). Connects to the LCM's TX |
| NC | Not Connected. Do not use this pin |
| BUSY | Not used on AD LCMs. Do not use this pin |

Note 1: From Arduino Board (5V) or external power supply (5V - 12V). See section "Power Supply" for more information.

Note 2: Supports **RS232** or **TTL/CMOS** levels. See section "Jumper Description" for more information.

Note 3: See section "Serial Communication" for more information on UART connections.



N1 - FFC (Flat Flexible Cable) Connector

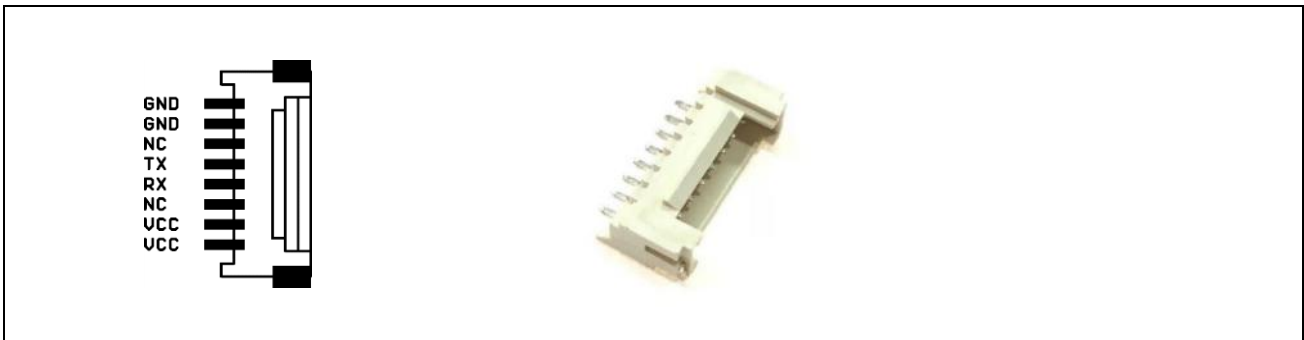


Caution

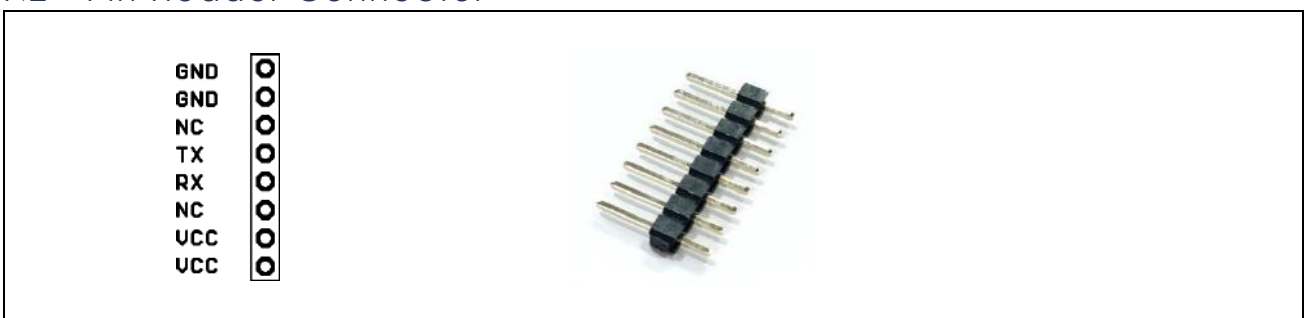
The FFC Cable contacts should be facing down (towards the board), with the blue tape facing up (away from the board).



N3 - Ribbon Connector



N2 - Pin Header Connector

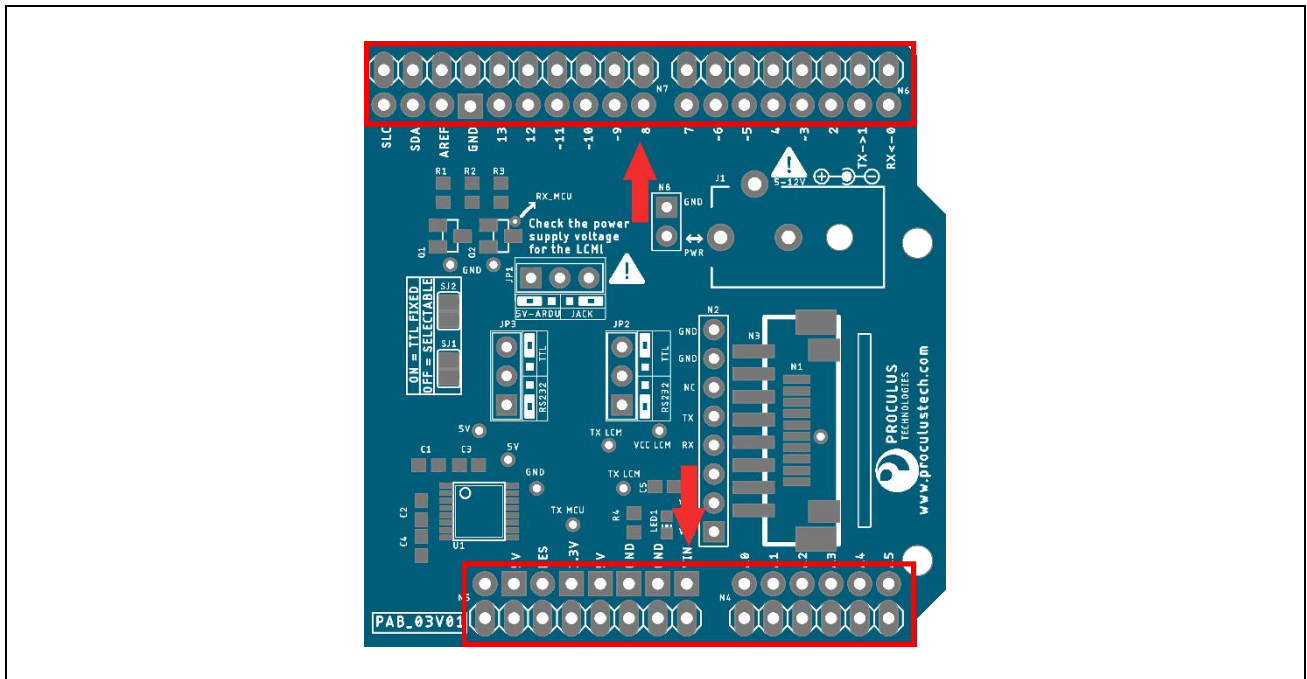


No Connector

No connectors available. Wires can be soldered to the Pin Header empty through-holes.

N4, N5, N6 and N7 Headers

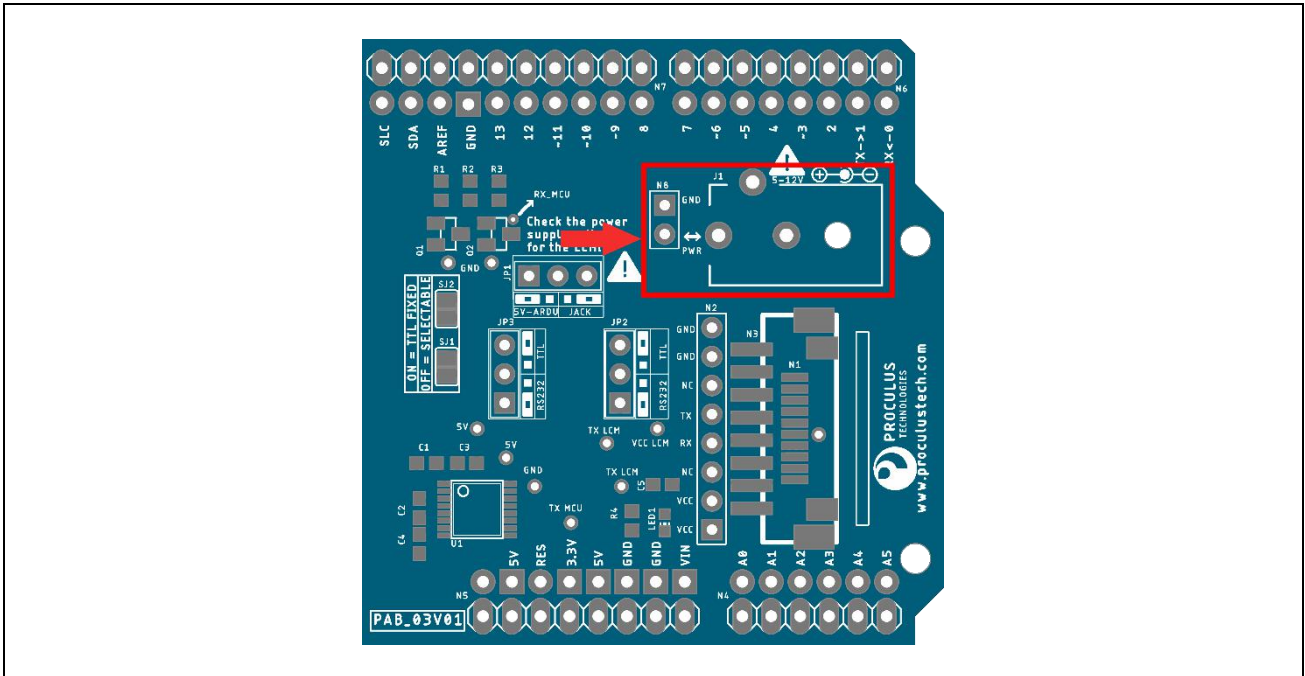
These pin headers are connected directly to the Arduino board headers and share all its features.



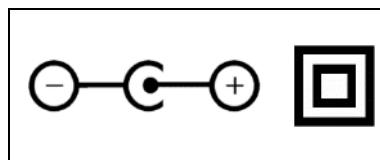
External Power (J1 and N8)

External power supply plug for the LCM. Used to supply voltage to the LCM when **more than 5V or 200mA** is required to power the LCM. The power is supplied by the **PWR signal**.

Voltage range: 5V to 12V (please verify your LCM's supply voltage before connecting the power).



N8 is an unpopulated **2-pin header**. **J1** is a center positive **J4 Jack**. Please only use insulated and center positive power supplies, identified by these symbols:

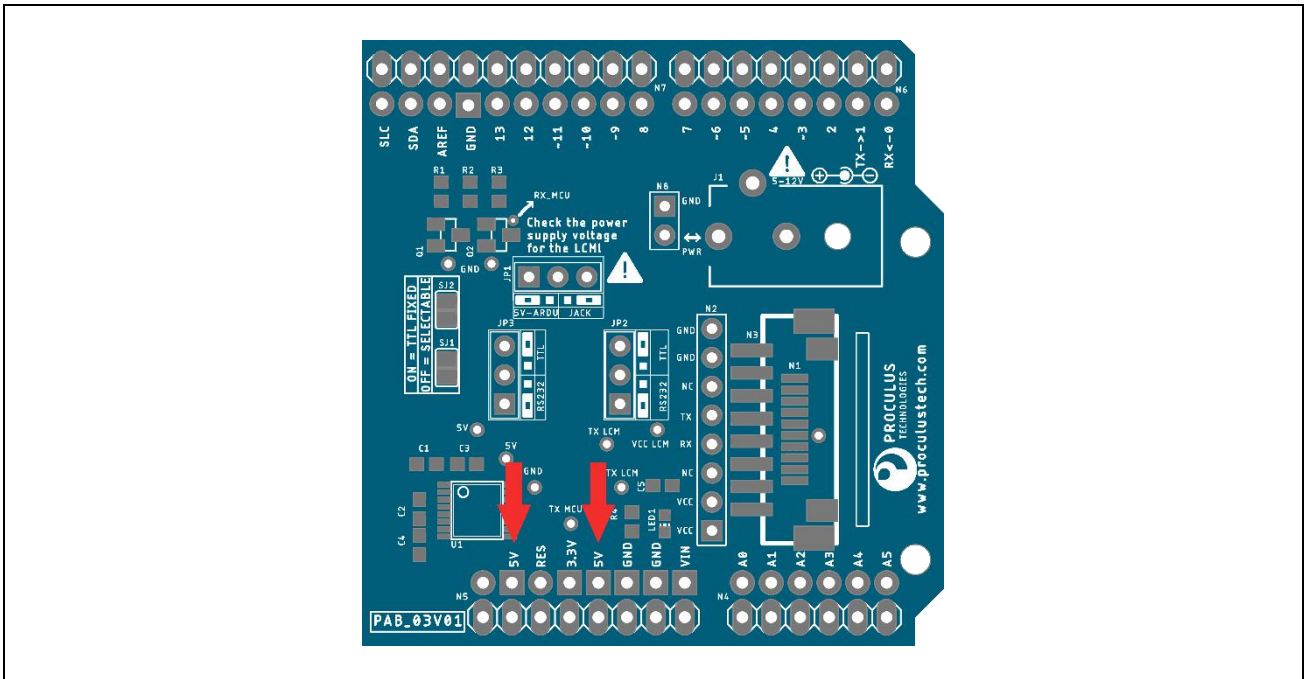


Warning

Verify the correct LCM power supply voltage before turning the power on.

Arduino Power (5V Pin)

The Arduino board can supply power to the LCM when **5V and less than 200mA** are required to power the LCM. The power is supplied by Arduino's **5V Pin**.

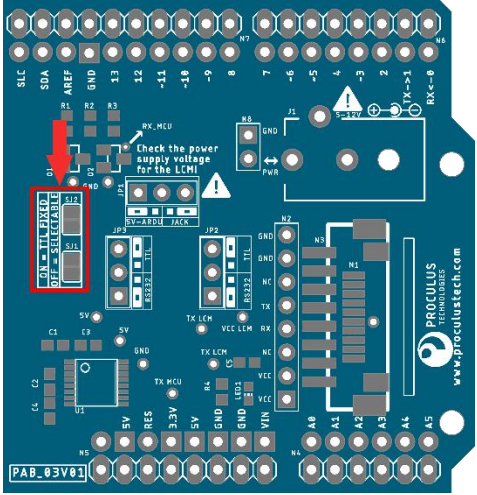
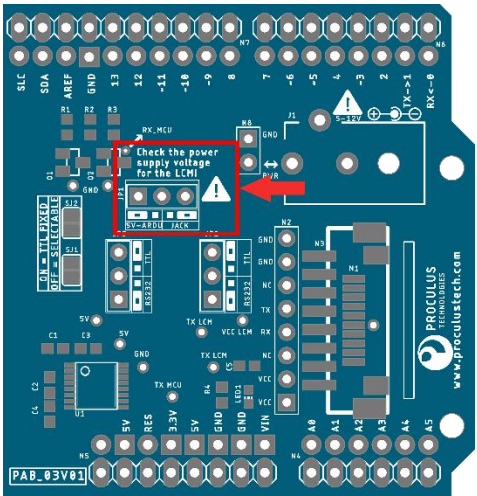


Jumper Description

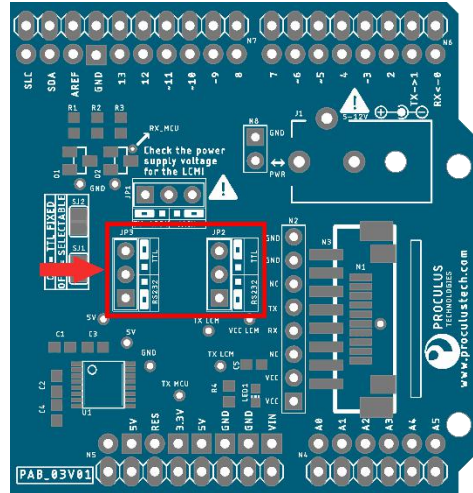
This table describes all the jumper selectors on the PAB_03:

| Jumper | Description | Usage |
|----------|--|--|
| SJ1, SJ2 | Not used | Do not use these solder jumpers |
| JP1 | LCM Power Supply selection (VCC signal). See section "Power Supply" for more information. | Right position: LCM is powered from the external power supply (PWR pin) Left position: LCM is powered from the Arduino board's 5V pin |
| JP2, JP3 | LCM Communication Electrical Level selection (TX and RX signals) | Bottom position: LCM communication level is RS232 Top position: LCM communication level is TTL/CMOS |

Jumper locations:

| Jumper | Description |
|----------|--|
| SJ1, SJ2 |  |
| JP1 |  |

JP2, JP3



Serial Communication

The PAB_03 board has one LCM serial communication port (connectors N1, N2 and N3):

| Port | Description | Details |
|-----------------|---|--|
| LCM Port | UART communications with the LCM | <ul style="list-style-type: none"> TTL/CMOS or RS232 (selectable). The communication level and power supply should match the LCM connected to this Port. |



Info

Maximum baudrate: **921600**bps.

The serial lines from the LCM are connected to the Arduino board's TX and RX signals through an electronic buffer to avoid signal collision with the programmer circuit.

Power Supply

The PAB_03 board is powered from the **5V** pin. The LCM connected to PAB_03 can be powered either from the same 5V pin or from the Power Jack (using an external power supply).

| Jumper JP1 Position | VCC Signal | Voltage Range | Max Current |
|-----------------------|---|---------------|-------------|
| 5V-ARDU (left) | Connected to Arduino's 5V pin | 5V | 200mA |
| JACK (right) | Connected to external power supply from J1 or N8 (PWR pin) | 5V to 12V | 2000mA |



Warning

Verify the correct LCM power supply voltage before turning the power on.

LED Indicators

PAB_03 has 1 LED status indicator:

| LED | Function |
|----------|---|
| 1 | Solid red when the LCM is powered-on (VCC signal is powered) |

Programming the Arduino Board

If you connect a Proculus LCM Display directly into the Arduino board, it's usually not possible to program the Arduino, unless you remove the connections first.

Using the PAB_03 Shield, it's possible to **program the Arduino board without disconnecting** the LCM.



Info

If you disconnect the LCM from the PAB_03 Shield, it may be necessary to **disconnect the JP3 jumper** before programming the board.

Typical Applications

Note

PAB_03 is provided *as is* and doesn't necessarily comply to any certifications or standards. As such, we recommend PAB_03 to be used **only for development purposes**.

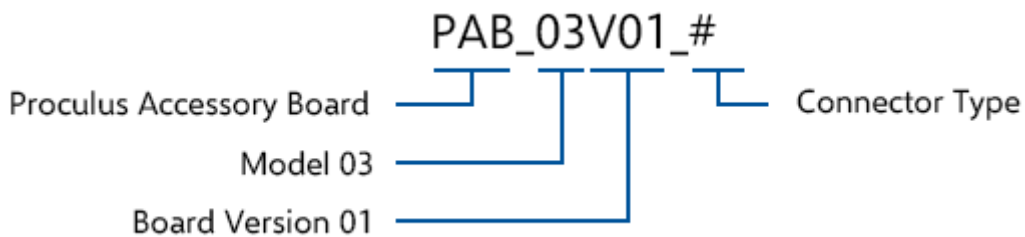
Ordering Information

Connector Types

The following table describes the available connectors and their respective symbols.

| Connector | Symbol | Details |
|--|--------|------------------------------------|
| FFC (Flat Flexible Cable) Connector | F | 10-pin, 1.0 mm pitch, Dual contact |
| Ribbon Cable Connector | R | 8-pin, 2.0 mm pitch |
| Pin Header | P | 8-pin, 2.56 mm pitch, Straight |
| No Connector | N | None |

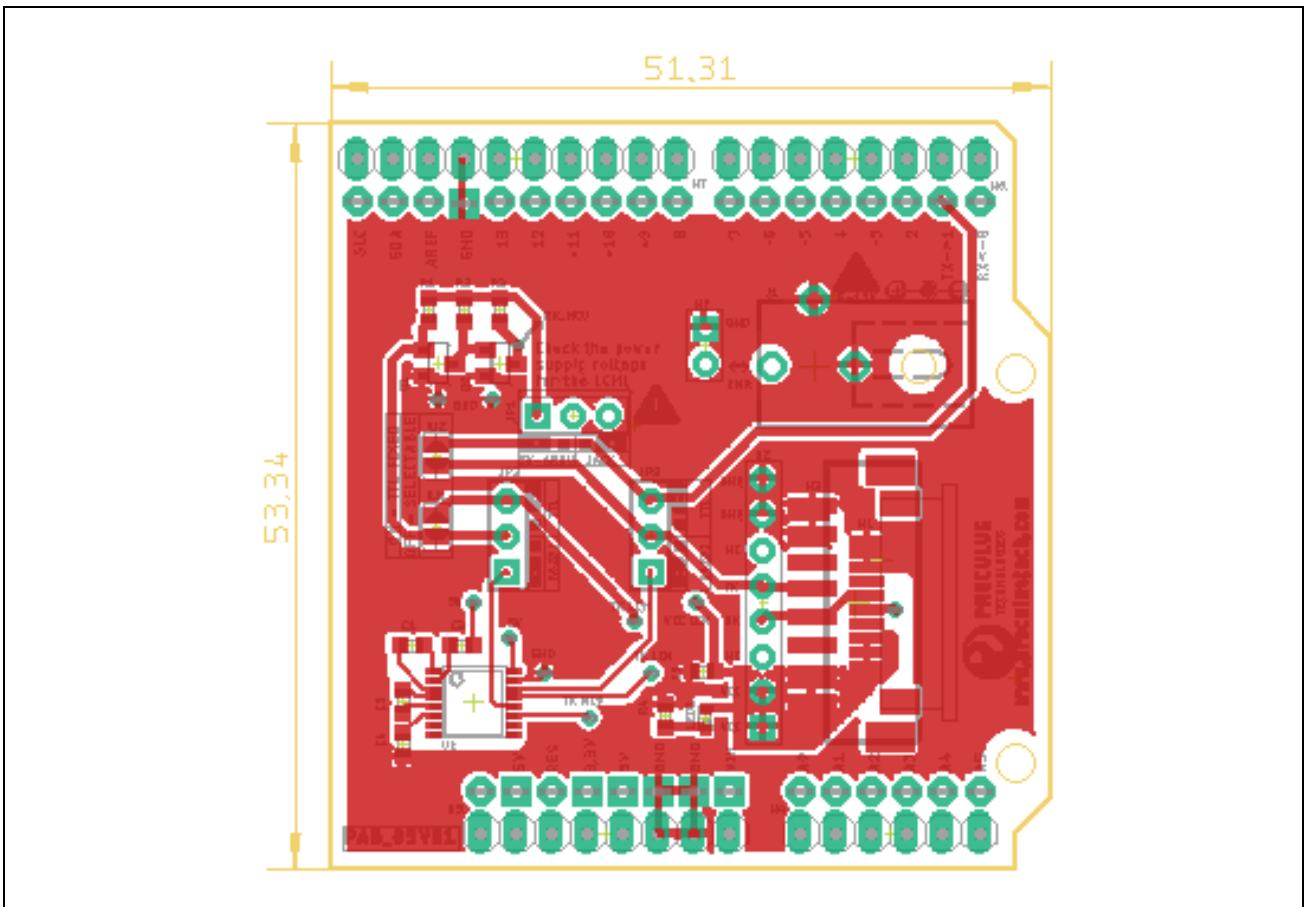
Part Number Selection



You can order PAB_03 in any configuration of pre-assembled connector types. The following table lists part numbers all available configurations:

| Connector Type | Connector |
|--------------------|--------------|
| PAB_03V01_F | FFC |
| PAB_03V01_R | Ribbon |
| PAB_03V01_P | Pin Header |
| PAB_03V01_N | No Connector |

Mechanical Information



Dimensions are given in millimeters.

Revision History

| Revision Number | Revision Date | Description | Pages Changed |
|-----------------|---------------|------------------|---------------|
| 1 | July 2019 | Initial release. | - |

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